FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

March 19 to March 25, 2017 (Week 12)

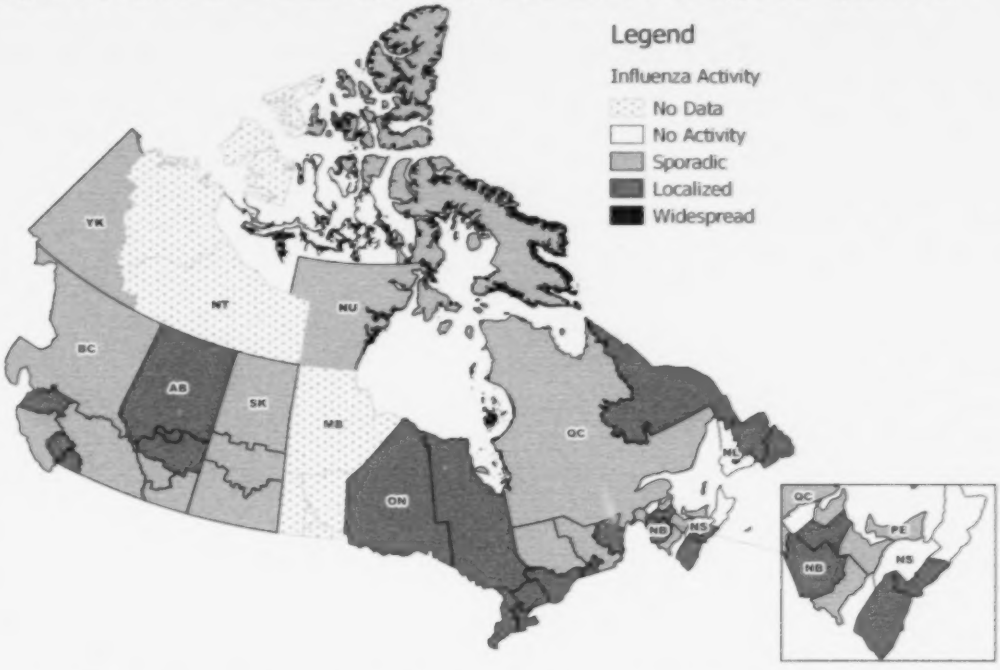
Overall Summary

- Overall, the slow decline in influenza activity in Canada has continued in week 12. Many parts of Canada are still reporting localized influenza activity in week 12.
- In week 12, all indicators (laboratory detections, influenza-like illness, outbreaks and hospitalizations) decreased from the previous week.
- Influenza activity due to influenza B is slowly increasing but is low compared to the same time period in the previous two seasons.
- Influenza A activity is decreasing; however, influenza A(H3N2) continues to be the most common subtype of influenza affecting Canadians.
- The majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 12, five regions across four provinces and territories reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 19 regions across eight provinces and territories. Localized activity was reported in 22 regions across seven provinces. No regions reported any widespread activity in week 12. For more details on a specific region, click on the map.

Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 12

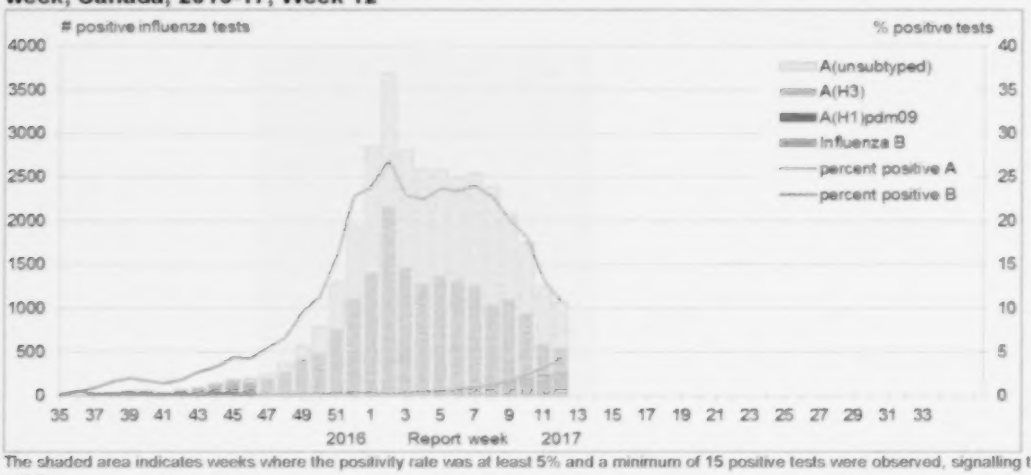


Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 12, the number (1,077) and the percentage of tests positive for influenza (15%) decreased slightly from the previous week. Although declining, influenza A continues to account for the majority of detections. Influenza B detections have been steadily increasing for the past few weeks. Influenza B detections are very low compared to the same time period in the previous two seasons. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

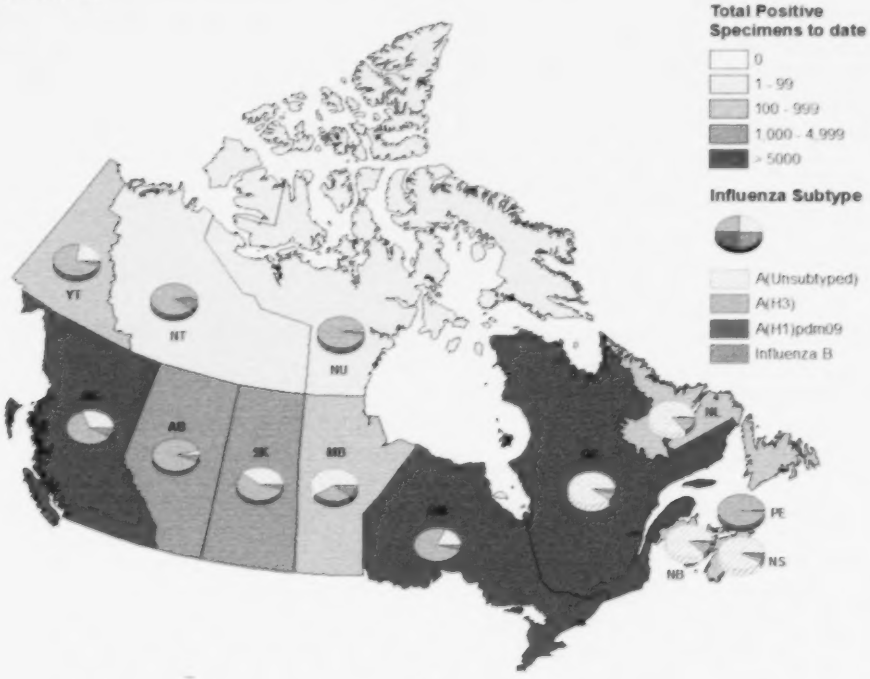
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 12



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 33,816 laboratory confirmed influenza detections have been reported, of which 95% have been influenza A. Influenza A(H3N2) is the most common subtype detected. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 12



To date, detailed information on age and type/subtype has been received for 23,736 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for almost half of the reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ represented 49% of cases, followed by adults aged 20-64 (34% of cases). Among cases of influenza B, adults aged 20-64 represented 41% of cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 12

Age groups (years)	Week (March 19, 2017 to March 25, 2017)					Cumulative (August 28, 2016 to March 25, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	>41	0	<5	41	9	2116	14	805	1297	113	2229	9%
5-19	32	0	7	25	18	2112	14	1047	1051	204	2316	10%
20-44	54	0	16	38	26	3292	30	1768	1494	207	3499	15%
45-64	80	0	12	68	39	3686	24	1888	1774	273	3959	17%
65+	252	0	31	221	52	11354	14	5259	6081	379	11733	49%
Total	>459	0	>66	393	144	22560	96	10767	11697	1176	23736	100%
Percentage[2]	76%	0%	15%	85%	24%	95%	0%	48%	52%	5%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
x: Supressed to prevent residual disclosure
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

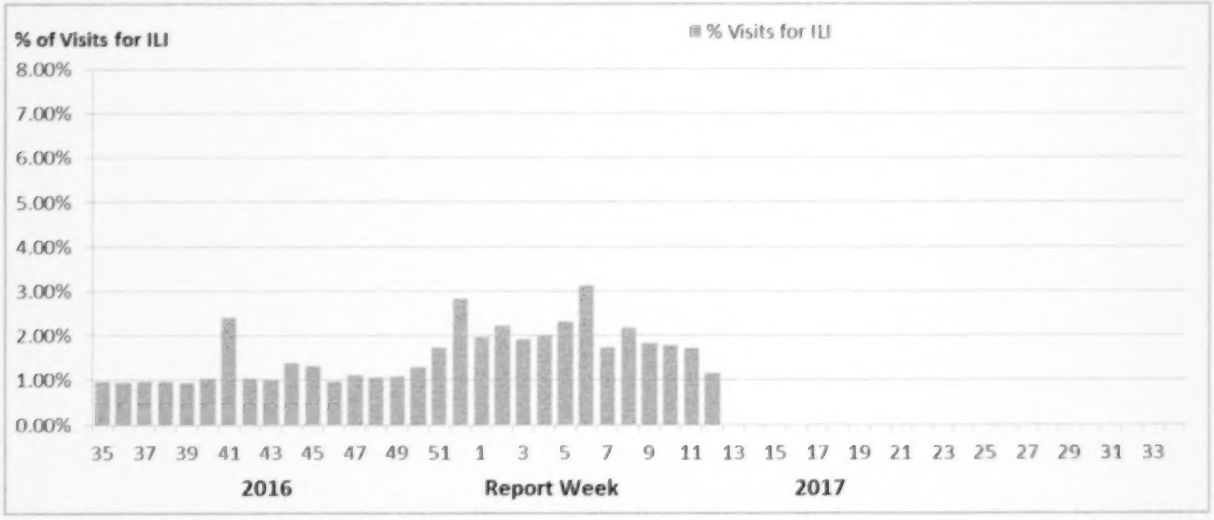
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 12, 1.2% of visits to healthcare professionals were due to influenza-like illness, compared to 1.7% in the previous week.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 12: 108



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

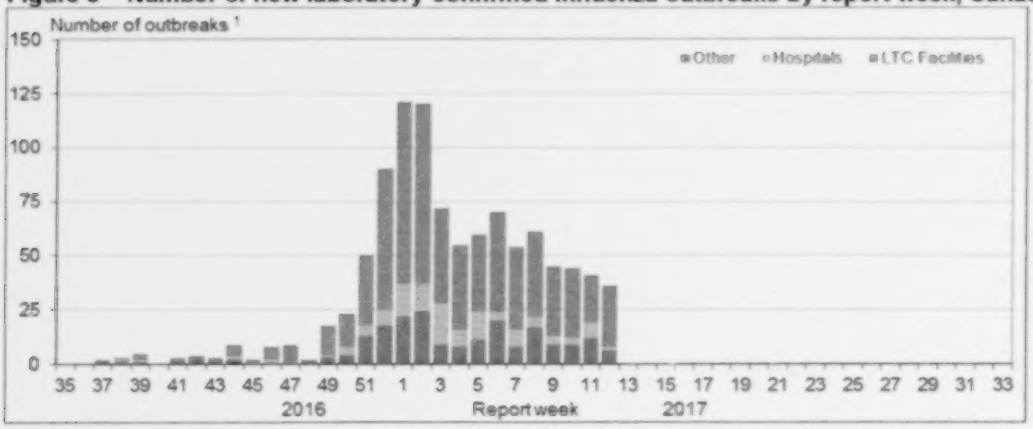
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 12, 36 laboratory confirmed influenza outbreaks were reported (seven fewer outbreaks than week 11). Among the reported outbreaks: 28 were in long-term care (LTC) facilities, two in hospitals and six in institutional or community settings (other). Of the outbreaks with known strains or subtypes: five were due to influenza A(H3N2), 13 were due to influenza A(UnS) and five outbreaks were due to influenza B. Four of the five outbreaks due to influenza B occurred in LTC facilities.

To date this season, 1,028 outbreaks have been reported and the majority (67%) have occurred in LTC facilities. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,552 outbreaks were reported, of which 74% occurred in LTC facilities.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 12



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 12, 182 influenza-associated hospitalizations were reported by participating provinces and territories*, down from 261 reported in the previous week. Influenza A accounted for 75% of hospitalizations. The weekly percentage of influenza B associated hospitalizations has been steadily increasing since week 02. The largest proportion of hospitalizations were among adults aged 65+ years (67%). Less than five intensive care unit (ICU) admissions and 10 deaths were reported in week 12.

To date this season, 5,377 hospitalizations have been reported, of which 96% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (2886/2903) were influenza A(H3N2). Adults 65+ accounted for 69% of the hospitalizations. A total of 196 ICU admissions and 292 deaths have been reported. The majority of deaths was reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 12

Age Groups (years)	Cumulative (August 28, 2016 to March 25, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	409	22	431 (8%)	11	6%	<5	x%
5-19	222	28	250 (5%)	14	7%	<5	x%
20-44	275	10	285 (5%)	20	10%	<5	x%
45-64	691	38	729 (14%)	52	27%	32	11%
65+	3563	119	3682 (68%)	99	51%	253	87%
Total	5160	217	5377 (100%)	196	101%	292	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 12, 15 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network. Nine cases (60%) were due to influenza A. The number of weekly hospitalizations reported since week 05 has been below the six year average for the same time period (Figure 7).

To date this season, 472 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 39% of hospitalizations and influenza A accounted for 90% (n=427) of the reported hospitalizations. Among the 45 hospitalizations due to influenza B, 23 (51%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 32% of influenza A hospitalizations. Additionally, 80 intensive care unit (ICU) admissions have been reported. Children aged 10-16 years accounted for 31% of ICU cases followed by children aged 0-23 months (28%). A total of 56 ICU cases reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 12

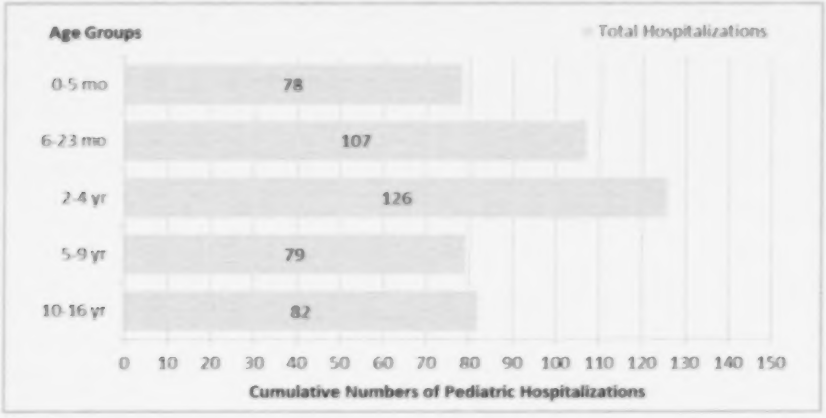
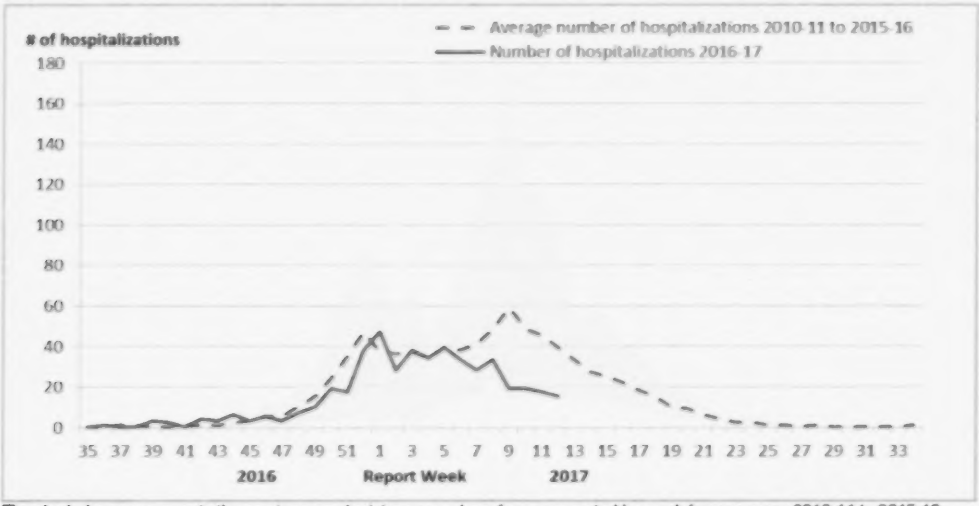


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 12



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 12, 47 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). Influenza A accounted for 74% of hospitalizations and the majority of cases (83%) occurred in adults aged 65+.

To date this season, 1,307 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 97% of hospitalizations. Adults aged 65+ accounted for 79% of hospitalizations. To date, 84 intensive care unit (ICU) admissions have been reported. A total of 60 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. Approximately 53 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 84 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 12

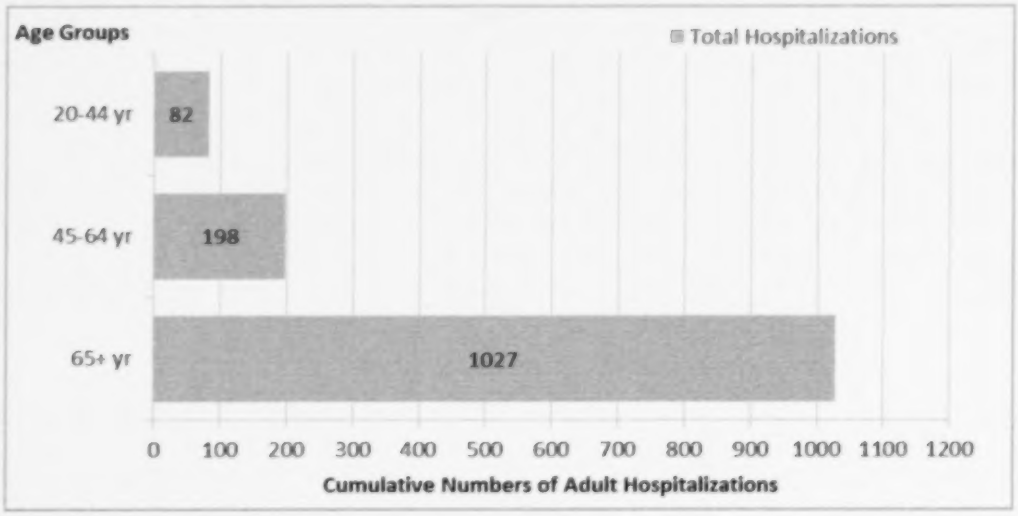
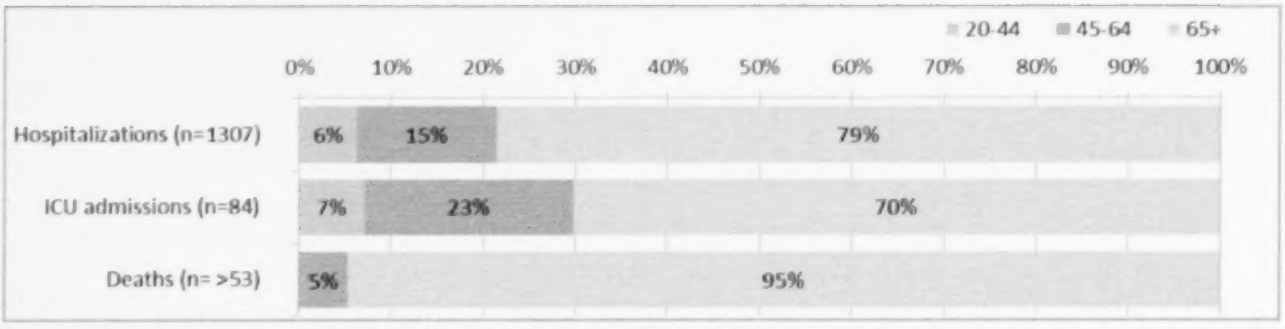


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 12



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 1,461 influenza viruses [1325 A(H3N2), 31 A(H1N1), 136 influenza B]. All but one influenza A virus (n=1324) and 40 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. Ninety-six influenza B viruses were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 12

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	329	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	964	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 329 influenza A (H3N2) viruses that underwent HI testing determined that 278 viruses belonged to genetic group 3C.2a and 48 viruses belonged to genetic group 3C.3a. Sequencing is pending for the remaining three isolates. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	31	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	40	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	96	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1]The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2]Determined by sequence analysis.
[3]WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4]Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 789 influenza viruses for resistance to oseltamivir and zanamivir and 187 influenza viruses for resistance to amantadine. All but one influenza A(H3N2) virus were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 187 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 12

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	662	1 (0.2%)	662	0 (0%)	161	161 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	25	0 (0%)	24	0 (0%)	25	25 (100%)
B	101	0 (0%)	102	0 (0%)	NA[1]	NA[1]
TOTAL	789	1 (0.1%)	789	0 (0%)	187	187 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/Influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.

Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.

Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.

Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.

Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = **No activity:** no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported

2 = **Sporadic:** sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†

3 = **Localized:** (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†

4 = **Widespread:** (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.

** More than just sporadic as determined by the provincial/territorial epidemiologist.*

† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.

This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.